UNOCAL 76

DESERT POWER

SALTON SEA

GEOTHERMAL POWER PLANT

DEDICATION

REMARKS BY

RICHARD J. STEGEMEIER

PRESIDENT AND

CHIEF EXECUTIVE OFFICER

UNOCAL CORPORATION

SALTON SEA, CALIFORNIA

APRIL 5, 1989

DISCLAIMER

GOOD MORNING.

PLEASE ACCEPT MY PERSONAL WELCOME TO THESE DEDICATION CEREMONIES FOR UNOCAL'S NEW GEOTHERMAL ELECTRIC POWER PLANT -- SALTON SEA UNIT 3. THIS NEW FACILITY MARKS A MILESTONE FOR UNOCAL CORPORATION -- AND FOR THE NATION'S GEOTHERMAL INDUSTRY.

AS STEVE LIPMAN EXPLAINED, OUR DECISION TO BUILD AND OPERATE THIS PLANT IS THE DIRECT RESULT OF A TECHNOLOGICAL BREAKTHROUGH. FOR THOSE OF YOU WHO KNOW UNOCAL, THAT MAY NOT BE TOO SURPRISING. THIS COMPANY HAS BEEN DEDICATED TO TECHNOLOGICAL INNOVATION SINCE IT BEGAN IN 1890 -- NEARLY A CENTURY AGO. AND HERE WE HAVE AN OUTSTANDING EXAMPLE OF ITS VALUE.

BENEATH OUR FEET COULD BE ONE OF THE LARGEST HOT WATER GEOTHERMAL FIELDS IN THE WORLD. UNTIL RECENTLY, WE COULDN'T HARNESS THIS ENERGY BECAUSE OF SERIOUS SCALING AND CORROSION PROBLEMS CAUSED BY THE HIGHLY SALINE GEOTHERMAL FLUIDS IN THIS FIELD.

IT TOOK TEN YEARS OF RESEARCH AND DEVELOPMENT BY UNOCAL'S GEOTHERMAL AND SCIENCE & TECHNOLOGY DIVISIONS TO SOLVE THESE

PROBLEMS. THANKS TO THEIR CREATIVITY AND HARD WORK, IT'S NOW POSSIBLE TO HANDLE THESE BRINES SAFELY AND PROFITABLY; AND WE'RE MOVING AHEAD TO FULLY DEVELOP THIS IMPORTANT RESOURCE. IN FACT, THE SALTON SEA FIELD MAY EVENTUALLY SUPPORT MORE ELECTRICAL GENERATING CAPACITY THAN ANY OTHER GEOTHERMAL FIELD IN THE WORLD. BUT TO TRANSFORM THESE GEOTHERMAL BRINES INTO COMMERCIAL ELECTRICITY IS BEYOND THE CAPABILITIES OF ANY SINGLE COMPANY: AS WE'VE HEARD, IT REQUIRED CLOSE AND EFFECTIVE TEAMWORK BETWEEN UNOCAL AND ITS FORMER JOINT-VENTURE PARTNERS, AS WELL AS ITS CONTRACTORS, SUPPLIERS, ELECTRIC UTILITIES, AND A NUMBER OF STATE AND LOCAL GOVERNMENT DEPARTMENTS AND AGENCIES.

SCIENTISTS HAVE LONG BEEN INTRIGUED BY THE POSSIBILITY OF UTILIZING THE ENERGY CREATED BY THE NATURAL HEAT OF THE EARTH. BUT IT HAS ONLY BEEN DURING THE PAST FEW DECADES THAT WE HAVE SUCCEEDED IN TURNING THIS CREATIVE VISION INTO COMMERCIAL REALITY.

I AM PROUD THAT UNOCAL, UNDER THE LEADERSHIP OF DR. CAREL OTTE, HAS PIONEERED THE DEVELOPMENT OF GEOTHERMAL ENERGY HERE IN THE UNITED STATES FOR NEARLY THREE DECADES. TODAY, UNOCAL IS THE WORLD'S LARGEST PRODUCER OF GEOTHERMAL POWER.

BESIDES THE IMPERIAL VALLEY, WE HAVE OPERATIONS AT THE GEYSERS IN NORTHERN CALIFORNIA -- THE WORLD'S LARGEST KNOWN GEOTHERMAL FIELD -- AND ON THE ISLAND OF LUZON IN THE PHILIPPINES. AND WITHIN THE NEXT FEW YEARS, WE EXPECT TO BEGIN PRODUCTION OF GEOTHERMAL ENERGY FROM A LARGE RESOURCE WE HAVE DISCOVERED NEAR JAKARTA IN INDONESIA. WORLDWIDE, UNOCAL NOW

HARNESSES ENOUGH GEOTHERMAL ENERGY TO SUPPLY POWER PLANTS WITH A TOTAL CAPACITY OF ABOUT 24 MILLION KILOWATT HOURS OF ELECTRICITY PER DAY. THAT IS THE ENERGY EQUIVALENT OF NEARLY 36,000 BARRELS OF CRUDE OIL PER DAY.

GEOTHERMAL ENERGY IS A RELATIVELY CLEAN AND COST-EFFECTIVE ENERGY ALTERNATIVE. THIS FACT TENDS TO BE FORGOTTEN THESE DAYS, AS MANY PEOPLE SEEM TO TAKE RELATIVELY CHEAP AND PLENTIFUL OIL SUPPLIES FOR GRANTED. THE UNITED STATES IS THE WORLD'S LARGEST CONSUMER OF PETROLEUM, YET WE HAVE LESS THAN 3 PERCENT OF KNOWN RESERVES. TO MAKE UP THE DIFFERENCE BETWEEN WHAT WE PRODUCE AND WHAT WE CONSUME, AMERICA HAS BEEN IMPORTING MORE AND MORE OF ITS OIL. IN 1985, WE IMPORTED ABOUT 32 PERCENT OF OUR PETROLEUM NEEDS. IN 1987, IT WAS 39 PERCENT. LAST YEAR, IT WAS ABOUT 42 PERCENT. AND BY THE MID-1990s, AMERICA'S OIL-IMPORT LEVEL IS EXPECTED TO EXCEED 50 PERCENT, THE HIGHEST LEVEL IN OUR HISTORY.

GIVEN THESE TRENDS, IT IS ONLY A MATTER OF TIME BEFORE OPEC DOMINATES THE WORLD OIL MARKET ONCE AGAIN. I'M SURE MOST OF YOU REMEMBER WHAT SKYROCKETING CRUDE OIL PRICES AND SUPPLY SHORTAGES DID TO THE AMERICAN ECONOMY IN THE 1970s. THE IMPACT OF A NEW ENERGY CRISIS IN THE 1990s COULD BE EVEN MORE DEVASTATING. NOW IS THE TIME TO PREPARE AMERICA FOR THE POSSIBILITY OF ANOTHER ENERGY CRUNCH.

GEOTHERMAL POWER CAN HELP BOLSTER AMERICA'S DOMESTIC ENERGY SUPPLIES. AND, UNLIKE COAL AND CRUDE OIL, IT CAN DO SO WITHOUT PRODUCING UNDESIRABLE AIR EMISSIONS. WE STILL HAVE A

SIGNIFICANT AMOUNT OF ELECTRICAL ENERGY WAITING TO BE RECOVERED FROM GEOTHERMAL RESOURCES IN THE UNITED STATES. THIS NEW ELECTRICAL GENERATING CAPACITY, IF DEVELOPED, COULD BE THE ENERGY EQUIVALENT OF MANY THOUSANDS OF BARRELS OF CRUDE OIL PER DAY -- CRUDE OIL THAT WE WOULD NO LONGER NEED TO IMPORT. AT TODAY'S PRICES, THIS WOULD PROVIDE A SUBSTANTIAL SAVINGS IN OUR BALANCE OF PAYMENTS.

GEOTHERMAL ENERGY CAN REALLY MAKE A DIFFERENCE HERE IN CALIFORNIA. CALIFORNIA'S ENERGY APPETITE IS ENORMOUS. WE CONSUME MORE GASOLINE PER YEAR THAN ANY COUNTRY IN THE WORLD EXCEPT THE SOVIET UNION! YET GEOTHERMAL ENERGY COULD SUPPORT AN INCREASING PART OF CALIFORNIA'S ELECTRICAL NEEDS, FREEING UP CRUDE OIL AND NATURAL GAS FOR OTHER PURPOSES.

THE GROWTH OF GEOTHERMAL ENERGY HERE IN THE IMPERIAL VALLEY AND THROUGHOUT THE COUNTRY, DEPENDS ON CONTINUED LONG-TERM INVESTMENTS IN EXPLORATION, RESEARCH, AND DEVELOPMENT. TYPICALLY, WE NEED 5 TO 10 YEARS TO DEVELOP A NEWLY DISCOVERED GEOTHERMAL FIELD INTO A SOURCE OF ELECTRICITY. IN OTHER WORDS, THE GEOTHERMAL FIELDS WE DISCOVER TODAY COULD BE PROVIDING ELECTRICAL POWER TO CALIFORNIA IN THE MID- TO LATE 1990s -- EXACTLY WHEN WE MAY NEED IT THE MOST.

TO DEVELOP NEW SOURCES OF GEOTHERMAL ENERGY, WE NEED CONSISTENT AND FAIR TAX AND PRICING POLICIES ON THE PART OF THE FEDERAL GOVERNMENT AND STATE REGULATORY AGENCIES. WE ALSO NEED A BUSINESS CLIMATE CONDUCIVE TO LONG-TERM GROWTH. AND WE NEED REASONABLE ACCESS TO POTENTIAL RESERVOIRS. GIVEN ADEQUATE

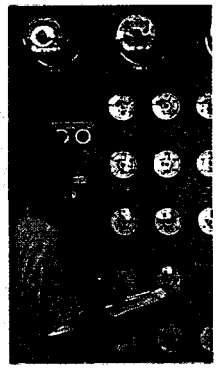
EXPLORATION OPPORTUNITIES AND A STABLE PLANNING ENVIRONMENT, EXPERIENCED RESOURCE PRODUCERS LIKE UNOCAL CAN DO THE REST.

GEOTHERMAL POWER IS A PROVEN ENERGY ALTERNATIVE -- IT'S CLEAN, IT'S AVAILABLE, AND IT'S COST EFFECTIVE. NOR DO GEOTHERMAL PLANTS IMPOSE LARGE DEMANDS ON PUBLIC SERVICES OR DISRUPT LOCAL COMMUNITIES. DURING THE PAST 30 YEARS, WE'VE SEEN A THRIVING NEW ENERGY INDUSTRY DEVELOP IN CALIFORNIA.

NATURE SUPPLIES THE HEAT OF THE EARTH -- WE SUPPLY THE TECHNOLOGICAL EXPERTISE TO MAKE IT DO OUR BIDDING. THROUGH THE COMBINED EFFORTS OF ENERGY COMPANIES, PUBLIC UTILITIES, AND THE GOVERNMENT, WE CAN DEVELOP AND USE THIS VALUABLE ENERGY SOURCE FOR GENERATIONS TO COME.

WORKING TOGETHER, WE'VE ACCOMPLISHED A GREAT DEAL HERE IN THE IMPERIAL VALLEY DURING THE PAST 10 YEARS. WORKING TOGETHER, I'M CONFIDENT WE'LL ACCOMPLISH A GREAT DEAL MORE IN THE DECADES AHEAD. THANK YOU FOR JOINING OUR CELEBRATION TODAY.

April 5, 1989



Control room at Unit 3.

Imperial Valley Operations

The 10,000-kilowatt Unit 1 project, built in 1982, was designed to demonstrate that the highly saline brines from the Salton Sea geothermal reservoir could be used for commercial electrical power generation.

Much of today's resource production technology evolved from the intensive testing conducted at Unit 1. The expertise gained established the design criteria for the larger Unit 3 plant.

Desert Power Company, a Unocal subsidiary, owns and operates the Unit 3 power plant, which is capable of delivering 47,500 kilowatts of power to Southern California Edison Company. Power from the plant is transmitted through the Imperial Irrigation District's electrical system and delivered to the Edison system north of the Salton Sea in the Coachella Valley.

Earth Energy, another Unocal subsidiary, has plans to build a 15,000-kilowatt power plant adjacent to Unit 1. The new Unit 2 plant is scheduled to become operational in 1990.

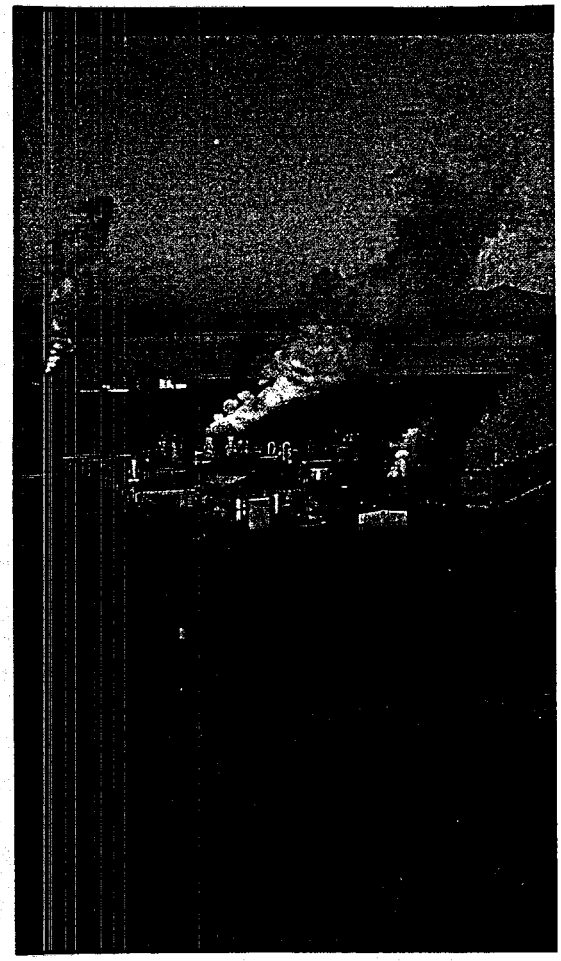
One of the geothermal wells supplying the Unit 3 power plant is the world's largest, capable of producing more than 3 million pounds per hour of geothermal brine. The wells that supply the plant produce 4.3 million pounds per hour of hot fluid. The amount of energy generated is sufficient to meet the needs of approximately 45,000 residential customers.

The Benefits of Geothermal Energy

Geothermal energy is clean and efficient, a useful addition to America's spectrum of reliable domestic energy resources.

On the local level, the industry's development is economically beneficial to surrounding communities. In the Imperial Valley, for example, increased tax revenues, payroll, and local purchases add considerably to the economic base.

The compatibility of geothermal development with its surroundings is clearly evident in the Imperial Valley. Careful environmental protection measures have been taken so that development does not interfere with agriculture, the valley's primary industry.



Unit 3 and Unit 1 (rear) are near the southern tip of the Salton Sea.

Unocal Corporation
1201 West 5th Street, P.O. Box 7600
Los Angeles, California 90051

UNOCAL 76

News Release

Contact: Carol Scott
(213) 977-5390

FOR IMMEDIATE RELEASE

Los Angeles, April 5 -- Unocal and its subsidiary, Desert Power, today dedicated the 47,500-kilowatt Salton Sea Unit 3 geothermal electric project in the Imperial Valley. The new power plant began commercial operation on February 14, 1989.

Unocal drills and operates the geothermal wells that produce hot brine from the Salton Sea geothermal reservoir. Steam is separated from the brine and used to produce electricity at the power plant owned by Desert Power.

The 47,500 kilowatts of electricity delivered by Unit 3 is sufficient to meet the needs of an estimated 50,000 residential customers. The power generated saves the equivalent of 500,000 barrels of oil per year.

"Unocal has been dedicated to technological innovation since it began in 1890, nearly a century ago," said Richard J. Stegemeier, Unocal's president and chief executive officer, in his remarks at the dedication ceremony. "And here we have an outstanding example of its value." It took ten years of

MORE. . .

research and development for Unocal to solve the problems associated with the highly saline geothermal brines of the Salton Sea reservoir.

Construction of the $110,000,000 steam separation and power generation facilities began in December 1986 and was completed in 26 months. Power is transmitted by the Imperial Irrigation District to Southern California Edison Company in the Coachella Valley.

Unocal is the world's largest producer of geothermal energy. The company has ongoing projects at The Geysers in northern California and in the Philippines, and expects to begin geothermal production in Indonesia in 1992. In the Imperial Valley, another subsidiary, Earth Energy, owns the 10,000-kilowatt Unit 1 power plant.

-30-

April 5, 1989